

IN THE CLAIMS:

Claims 1, 16, 25, 27 and 34 have been amended herein. New claims 36-38 have been introduced into the application. All of the pending claims 1-38 are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of the Claims:

1. (Currently amended) A flexible spinal needle catheter assembly comprising:

a flexible needle catheter fabricated of plastic and having a sufficiently high tensile strength to maintain structural integrity during and after insertion into a patient's body and retraction therefrom, but also possesses sufficient transverse flexibility to deform and accommodate patient motion after insertion to reduce patient irritation therefrom, said flexible needle catheter defining a hollow bore for conveying medicating agent therethrough, said bore extending through a length of said flexible needle catheter, said flexible needle catheter having a proximal end which defines a leading edge;

a support needle releaseably secured to said flexible needle catheter, said support needle being removably disposed within said hollow bore of said flexible needle catheter, said support needle having a first end which defines a pencil point, non-cutting piercing point configured for penetrating the dura mater of a patient, said support needle having an outside diameter sized so that upon withdrawal of the flexible spinal needle catheter assembly from a dura mater of a spine of a patient, subsequent to an insertion of said assembly through the dura mater, a puncture opening produced by said insertion being of dimensions which permit the dura mater substantially to reseal said puncture opening formerly occupied by the flexible spinal needle assembly within said dura mater, said support needle defining a hollow lumen which extends along a length of said support needle and an opening, defined proximate said first end, which communicates the environment with said lumen, said support needle being positionable in two conditions relative to said flexible needle catheter; in a first condition said support needle being positioned with ~~dimensioned such that~~ said first end of said support needle is being positioned

outside of said bore of said flexible needle catheter, said non-cutting piercing point and said opening being positioned outside of said bore, the opening being positioned contiguous to the leading edge of the flexible needle catheter and in a second condition said support needle being removed from within said hollow bore of said flexible needle catheter, after being inserted into the patient's body, and

a solid stylet, releasably secured within said lumen, said stylet being positioned in a first condition to preclude access from the environment to said lumen through said opening.

2. (Cancelled).

3. (Previously presented) The flexible spinal needle assembly of claim 1, wherein said leading edge of said flexible needle catheter is configured and arranged to provide a feedback signal to indicate dural puncture.

4. (Previously presented) The flexible spinal needle assembly of claim 1, wherein: a rear end of said support needle carries a support hub having a first attach structure; and a proximal end of said flexible needle carries a flexible needle hub having a second attach structure configured to removably attach to the first attach structure carried by said support hub.

5. (Previously presented) The flexible spinal needle assembly of claim 4, wherein the first and second attach structures comprise a luer lock type connection.

6. (Previously presented) The flexible spinal needle assembly of claim 4, wherein said flexible needle hub is configured for substantially unobtrusive attachment to a patient's skin by way of an intermediary adhesive element.

7. (Withdrawn) The flexible spinal needle assembly of claim 4, wherein said flexible needle hub is configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a direction of needle insertion.

8. (Previously presented) The flexible spinal needle assembly of claim 1, wherein: a rear end of said support needle carries a support hub; and a proximal end of said flexible needle carries a flexible needle hub having a detach structure configured to detach the flexible needle hub from the support hub.

9. (Previously presented) The flexible spinal needle assembly of claim 1, wherein: a proximal end of said flexible needle carries a flexible needle hub; and a rear end of said support needle carries a support hub having a detach structure configured to detach the flexible needle hub from the support hub.

10. (Cancelled)

11. (Cancelled)

12. (Previously presented) The flexible spinal needle assembly of claim 1, wherein said flexible needle further comprises a force absorbing structure to prevent kinking when the flexible needle is overly flexed.

13. (Withdrawn) The flexible spinal needle assembly of claim 12, wherein said force absorbing structure comprises a ribbon spring.

14. (Previously presented) The flexible needle assembly of claim 12, wherein said force absorbing structure comprises a flexible kink sleeve disposed on a portion thereof.

15. (Previously presented) The flexible spinal needle assembly of claim 1, wherein said stylet is slidably mounted in said support needle.

16. (Currently amended) A flexible spinal needle assembly for inserting a distal end of a flexible spinal needle through dura mater into a spine of a patient, said flexible spinal needle assembly comprising:

a flexible needle having a leading edge, and made of a material that has a sufficiently high tensile strength to maintain structural integrity during and after insertion into and retraction from a patient's body, but also possessing sufficient transverse flexibility to deform and accommodate patient motion after insertion to reduce irritation therefrom, said flexible needle defining an internal bore through a length thereof;

a support needle having a proximal end and a pencil point non-cutting piercing point at a distal end, said support needle being releaseably secured to said flexible needle to resist relative motion between a distal end of said flexible needle and said pencil point non-cutting piercing point during insertion of said flexible spinal needle assembly into a patient, the support needle defining an interior lumen and an opening, said opening being adapted to communicate the interior lumen with the exterior of said support needle;

wherein said flexible needle is carried exterior to said support needle to expose said non-cutting piercing point when said assembly is positioned for said inserting, and

wherein said support needle is positionable in two conditions relative to said flexible needle: in a first condition said support needle is positioned within said bore of said flexible needle with said distal end of said support needle being positioned outside of said internal bore of said flexible needle, said non-cutting piercing point and said opening being positioned outside of said bore; and in a second condition said support needle being removed from within said bore of said flexible needle catheter.

17. (Previously presented) The flexible spinal needle assembly of claim 16, wherein said flexible needle has an exterior diameter configured such that withdrawal of said flexible needle from said dura mater, subsequent to insertion of the flexible needle assembly therethrough, permits said dura mater substantially to reseal a space formerly occupied by said flexible needle, and a tip and a flexible needle body of said flexible needle are of substantial elongated extent to be further extendable into the dura mater upon extraction of said support needle.

18. (Previously presented) The flexible spinal needle assembly of claim 17, wherein: said proximal end of said support needle carries a support hub having a first attach structure; a proximal end of said flexible needle carries a flexible needle hub having a second attach structure configured to interface in removable interference with said first attach structure carried by said support hub.

19. (Withdrawn) The flexible spinal needle assembly of claim 16, wherein said flexible needle further comprises a radially reinforcing material located at a distal end of said flexible needle, said reinforcing material resisting peel-back of said flexible needle from said support needle.

20. (Previously presented) The flexible spinal needle assembly of claim 16, having a distal end of said flexible needle being constructed to provide a perceptible feedback signal when said distal end of said flexible needle penetrates said dura mater.

21. (Previously presented) The flexible spinal needle assembly of claim 16, characterized in said flexible needle hub further being configured for attachment to medical fluid transfer equipment having structure to form a luer lock type connection.

22. (Withdrawn) The flexible spinal needle assembly of claim 16, wherein a flexible needle hub is configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a direction of flexible needle insertion.

23. (Previously presented) The flexible spinal needle assembly of claim 16, wherein said flexible needle comprises a flexible kink sleeve disposed on a portion thereof, said flexible kink sleeve configured to prevent kinking of said flexible needle when said flexible needle is extended beyond the substantial flexure point during use.

24. (Canceled).

25. (Currently amended) A flexible spinal needle comprising:

a support needle having a pencil point, non-cutting piercing tip, said support needle defining an interior lumen and an opening, said opening communicating said interior lumen with the exterior of said support needle;

a flexible needle body comprising an elongated hollow tube and made of a material that has a sufficiently high tensile strength to maintain structural integrity during and after insertion into and retraction from a patient's body, but also possessing sufficient transverse flexibility to deform and accommodate patient motion after insertion to reduce irritation therefrom, said flexible needle body configured to be removeably and slidably mounted on an exterior of said support needle, said flexible needle body defining a leading edge, said leading edge being positioned contiguous to said opening of said support needle ~~after insertion into the patient's body;~~ and

a flexible kink sleeve disposed on a portion of said flexible needle body, said flexible kink sleeve being configured to prevent kinking of said flexible needle body, when said flexible needle body is bent beyond a flexible structural resilience thereof during use

wherein said support needle is positionable in two conditions relative to said flexible needle body: in a first condition said flexible needle body is mounted on said exterior of said support needle, said support needle being positioned with said first end of said support needle extending beyond said leading edge of said flexible needle body, and in a second condition said support needle is removed from physical contact with said flexible needle body.

26. (Withdrawn) A flexible spinal needle comprising: a flexible needle body comprising an elongated hollow tube, said flexible needle body configured to be slidably mounted on an exterior of a support needle; a flexible needle hub configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a longitudinal axis of said flexible needle body.

27. (Currently amended) A flexible spinal needle assembly comprising:

a support needle comprising a first end defining a pencil point, non-cutting piercing point, and a hollow bore with an opening proximate said first end allowing access to said bore; and

a flexible needle removably and slidably mounted on an exterior portion of said support needle such that said first end of said support needle protrudes from said flexible needle exposing said pencil point, non-cutting piercing point and said opening, said flexible needle made of a material having a sufficiently high tensile strength to maintain structural integrity during and after insertion into and retraction from a patient's body, but also possessing sufficient transverse flexibility to deform and accommodate patient motion after insertion to reduce irritation therefrom and having a leading edge positioned contiguous to the opening of the support needle after insertion, wherein said flexible needle has sufficient transverse flexibility to accommodate patient torso bending movement so as to substantially reduce a patient's awareness of the presence of the flexible needle, said flexible needle defining a lumen therein for transporting a medicinal agent;

wherein said support needle is positionable in two conditions relative to said flexible needle; in a first condition said support needle is positioned with said first end of said support needle extending beyond said leading edge of said flexible needle, said non-cutting piercing point and said opening being positioned beyond said leading edge, the opening being positioned contiguous to the leading edge, and in a second condition said support needle being removed from physical contact with said flexible needle..

28. (Previously presented) The flexible spinal needle assembly of claim 27 wherein the flexible needle comprises a medical grade plastic material and a tip extending axially from the flexible needle body of said flexible needle of substantial extent to be further extendable into the dura mater upon extraction of said support needle.

29. (Previously presented) The flexible spinal needle assembly of Claim 1 wherein said first end of said flexible needle catheter is tapered into a curve to blend smoothly into the outer surface of said support needle.

30. (Previously presented) The flexible spinal needle assembly of Claim 1 wherein said first end of said flexible needle catheter is reinforced with a flat ribbon internal spring disposed within a wall of said flexible needle.

31. (Previously presented) The flexible spinal needle assembly of Claim 1 wherein said first end of said flexible needle catheter is reinforced with a metal band.

32. (Previously presented) The flexible needle catheter assembly of Claim 1 wherein said flexible needle catheter is disposed on an outer surface of said support needle.

33. (Cancelled).

34. (Previously presented) The flexible needle catheter assembly of ~~Claim 33~~ Claim 1 wherein a plane containing said leading edge is positioned perpendicularly to a longitudinal axis of said ~~support-needle assembly~~.

35. (Previously presented) The flexible spinal needle assembly of Claim 16 wherein said leading edge of the flexible needle is arranged relative to said support needle such that said leading edge of the flexible needle is positioned contiguous to the opening of the support needle after an insertion of said leading edge into the patient's body.

36. (new) The flexible needle catheter assembly of Claim 16 wherein a plane containing said leading edge is positioned perpendicularly to a longitudinal axis of said ~~support-needle assembly~~.

37. (new) The flexible needle catheter assembly of Claim 25 wherein a plane containing said leading edge is positioned perpendicularly to a longitudinal axis of said ~~support-needle assembly~~.

38. (new) The flexible needle catheter assembly of Claim 27 wherein a plane containing said leading edge is positioned perpendicularly to a longitudinal axis of said ~~support~~-needle assembly.